

## **REMARKS**

These Remarks responds to the final Office Action mailed November 4, 2010. Claims 1-3 and 5-20 were pending in the application. No claims have been amended, added or canceled. Thus, claims 1-3 and 5-20 are pending for reconsideration.

### ***Summary of the Office Action***

In the Office Action, claim 1 stands rejected under 35 U.S.C. § 102(b) as anticipated by U.S. Patent No. 6,464,867 to Morita *et al.* (“Morita”), and claims 2-3 and 5-20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Morita in view of Japanese Patent No. 2002-210494 to Kazuki *et al.* (“Kazuki”). These rejections are traversed based upon the following remarks.

### ***Response to rejections under 35 U.S.C. § 102(b)***

Applicants respectfully traverse the rejection of claim 1 based on the following remarks.

Claim 1, recites, *inter alia*, “a catalyst mixed tower located in the downstream of the ultraviolet oxidation equipment and having ***catalyst supports*** each of which has a ***catalyst*** carried on a support, the catalyst mixed tower also having ***anion exchange resins*** which absorb and remove the decomposition product of the organic compound” and “wherein a ratio of the catalyst supports to the anion exchange resins is 3 to 20 weight percent.” (Emphasis added.) Thus, claim 1 is drawn to an ultrapure water production plant having a catalyst mixed tower that includes (1) an anion exchange resin, (2) catalyst supports and (3) a catalyst. The ratio of the ***catalyst supports*** to the ***catalyst*** is 3 to 20 weight percent. These features are not disclosed by Morita.

The Office Action alleges that Morita et al. disclose, “the ratio of the catalyst supports to the anion exchange resins as being between 3% and 20% by weight (e.g., 1-10%, see lines 14-17 of col. 7).” (Office Action, page 2, lines 16-18). The Office Action further alleges,

Applicant's argument that Morita et al disclose using an anion exchange resin to support the catalyst is noted, however, instant claim 1 is not limited to any particular type of catalyst support and therefor fails to patentably define over Morita et al. In addition, applicant's invention appears also to be limited to an anion exchange resin for supporting the catalyst (see paragraph 41 of the instant invention. Applicant also argues that Morita fails to disclose a ratio of catalyst supports to anion exchange resin of 3-20%, however, Morita et al disclose a range of .1-10% which overlaps with the claimed range. Accordingly, the rejection of claim 1 as being anticipated by Morita has been maintained. (Office action, page 5, line 16 to page 6, line 3).

These Office Action positions are incorrect for at least the following reasons:

**CLAIM 1 NEED NOT BE LIMITED TO A PARTICULAR SUPPORT TO DISTINGUISH FROM MORITA**

As discussed above, claim 1 is drawn to an ultrapure water production plant having a catalyst mixed tower that includes three distinct structures: (1) an anion exchange resin, (2) catalyst supports and (3) catalyst. Support for this feature can be found in at least paragraph [0021] of the specification. Further, paragraph [0021] of the specification discloses several catalyst supports including ion exchange resins, active carbon, alumina and zeolite. Applicants are not aware of, nor does the Office Action cite to any statute or rule that requires Applicants to limit their inventions to specific embodiments.

**THE INVENTION IS NOT LIMITED TO AN ANION EXCHANGE RESIN FOR SUPPORTING THE CATALYST**

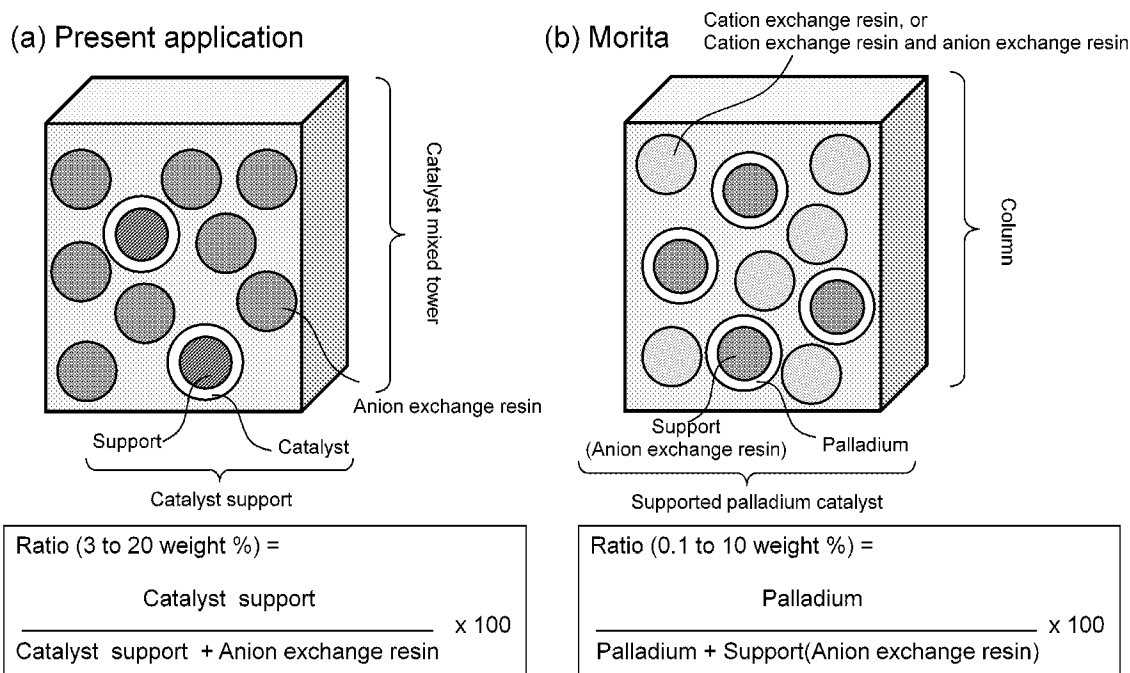
As discussed above, paragraph [0021] of the specification discloses several catalyst supports including ion exchange resins, active carbon, alumina and zeolite. Paragraph [0021] is reproduced below.

For a support, which carries a catalyst, ion exchange resin, active carbon, alumina and zeolite etc., are given. In particular, a catalyst resin carrying a catalyst on an anion exchange resin as the support, which is a kind of catalyst support, is preferable because the catalyst resin is easily mixed with the anion exchange resin uniformly. (Paragraph [0021])

Further, it is clear from the second sentence of paragraph [0021] that the ion exchange resin catalyst support (catalyst resin) is different from the anion exchange resin – the catalyst resin must be capable of being “easily mixed with the anion exchange resin uniformly.” It simply makes no sense to emphasize a preference for mixability *unless* the catalyst support and the anion exchange resin are different. The Office Action’s reliance on the description of the embodiment taught in paragraph [0041] to limit the claims while ignoring the teachings of paragraph [0021] is unjustified and constitutes legal error.

**MORITA DOES NOT DISCLOSE A RATIO OF CATALYST SUPPORTS TO ANION EXCHANGE RESIN OF 3-20%**

The Office Action alleges that “Morita et al. disclose a range of .1-10% which overlaps with the claimed range.” (Office Action, page 6, lines 2-3). However, Morita discloses a ratio of *catalyst* to *Catalyst support*, not *catalyst support* to *anion exchange resin*. The recited structure of claim 1 is illustrated schematically on the left side of the figure below while the structure of Morita is illustrated on the right side of the figure below.



Applicants agree that the portion of Morita cited by the Office Action teaches a range of .1-10%. However, Morita is describing the ratio of the *catalyst shell* to the *anion exchange resin*. Specifically, Morita teaches: “When a supported palladium catalyst is used, i.e., when a catalyst obtained by supporting palladium on a support is used, it is preferable that the amount of *palladium* supported on the support is 0.1 to 10% by weight.” (Morita, column 7, lines 14-17)(emphasis added). Indeed, the very next sentence of Morita clarifies that the support of Morita *is* the anion exchange resin. Specifically: “Among the supported palladium catalysts, supported palladium catalysts obtained by supporting palladium on anion exchange resins are preferable.” (*Id.* at column 7, lines 17-20). That is, the *catalyst support* is the anion exchange resin as illustrated in the right half of the figure above.

In contrast to this teaching of Morita, claim 1 recites “wherein a ratio of the *catalyst supports* to the *anion exchange resins* is 3 to 20 weight percent.” The ratio recited in the claim is illustrated in the left half of the figure above. As is readily apparent from comparing the left and right halves of the figure above, the ratio recited in claim 1 and the ratio taught by Morita are completely different and unrelated. Thus, Morita does *not* anticipate claim 1 or any of the claims that depend from claim 1. Therefore, Applicants respectfully submit that claim 1 is patentable over Morita. Accordingly, Applicants respectfully request withdrawal of the rejection of claim 1 under 35 U.S.C. § 102(b).

***Response to rejections under 35 U.S.C. § 103(a)***

In the Office Action, claims 2-20 stand rejected as being unpatentable on the basis that it would be obvious to modify the invention disclosed in Morita to provide a degasser as suggested by Kazuki in order to remove gases evolved by the ultraviolet radiation and catalyst units. Applicants respectfully traverse these rejections.

As discussed above, Morita does not disclose or teach “wherein a ratio of the catalyst supports to the anion exchange resins is 3 to 20 weight percent” as recited in amended claim 1. Applicants submit that Kazuki fails to cure this deficiency of Morita, and thus the combination of Morita and Kazuki fails to disclose each and every element recited in claims 2, 3 and 5-20, which depend from claim 1. Therefore, Applicants respectfully submit that claims 2, 3 and 5-20 are patentable over the combination of Morita and Kazuki. Accordingly, Applicants respectfully request withdrawal of the rejections of claims 2-20 under 35 U.S.C. § 103(a).

### **CONCLUSION**

In view of the foregoing remarks, Applicants respectfully submit that the present application is now in condition for allowance, and request that a notice of allowance be forthcoming. The Examiner is invited to contact the undersigned for any reason related to this case.

The Commissioner is authorized to charge any necessary fees to USPTO Deposit Account No. 18-1579.

Respectfully submitted,



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